Figure 4 is a view similar to Figure 3, but after securing of the conductor within the connector; and

Figure 5 is a cross-sectional view of a second embodiment of a socket insert.

Referring first to Figure 1, a connector body 10 is formed from aluminium and comprises a tubular socket 12. The portion of the body 10 shown may be formed integrally with one or more similar parts incorporating further similar sockets, eg for end-to-end connection of two conductors. Alternatively, the body 10 may be formed integrally with a fixing flange for termination of the conductor.

A wall of the body 10 has a threaded bore 14 to receive a shear-head clamping bolt 15 (see Figures 3 and 4). The body 10 may be provided with more than one, eg two, such threaded bores 14.

A large diameter conductor may be inserted directly into the socket 12 and clamped using a bolt 15. For use with smaller diameter conductors, however, the socket insert 20 shown in Figure 2 is used. The insert 20 has the form of an extruded aluminium tube with a castellated profile. The internal bore 21 of the insert 20 is formed with a number of axial teeth 22 which enhance the engagement of the insert 20 with a conductor inserted into the bore 21.

The connector may be supplied with the insert 20 in position, in which case a simple resilient C-clip or the like (not shown), eg of plastics material, may be fitted into the open end of the socket 12 to prevent the insert 20 being dislodged prior to use.

In use, if a relatively large diameter conductor is to be clamped in the socket 12, the insert 20 is removed from the socket 12 and the conductor inserted. The clamping bolt(s) 15 are tightened until they clamp the conductor against the internal surface of the socket 12.

For a smaller diameter conductor 30 (see Figures 3 and 4), the insert 20 remains in position. The conductor 30 is inserted into the internal bore of the insert 20. The clamping bolt(s) 15 are then tightened until their tips engage and deform the insert 20. Continued tightening of the bolt(s) 15 securely clamps the conductor 30 within the socket 12, the head of each clamping bolt 15 shearing off when a predetermined torque is applied (as shown in Figure 4). The effect of the insert 20 is to displace the longitudinal axis of the conductor 30 closer to the centre line of the connector body 10 than would be the case if no insert were used. This improves the electric field properties of the completed connection and makes it easier to insulate. In addition, the same length of clamping bolt 15 can be used as for a larger diameter conductor.

The socket insert 40 shown in Figure 5 differs from that of Figure 2 in that it is of corrugated, rather than castellated, form.

Claims

1. An electrical connector comprising a connector body with a tubular socket to receive, in use, an electrical conductor, clamping means arranged to secure the electrical conductor within the socket, and a socket insert fitting within the socket so as to reduce the effective size of the socket, wherein the socket insert is tubular and is adapted to be deformed by the clamping means into retaining engagement with the electrical conductor.

2. A connector as claimed in Claim 1, wherein the socket insert is of aluminium.

3. A connector as claimed in Claim 1 or Claim 2, wherein the socket insert is formed with a castellated or corrugated profile.

4. A connector as claimed in Claim 3, wherein the socket insert has a castellated profile.

5. A connector as claimed in any preceding claim, wherein the internal surface of the tubular socket insert is provided with serrations or tooth-like formations.

6. A connector as claimed in any preceding claim, wherein the socket is a bore of circular cross-section.

7. A connector as claimed in any preceding claim, wherein the clamping means comprises one or more clamping bolts held in threaded bores in the connector body such that they extend into the socket so as to clamp, via the socket insert, a connector inserted therein against the opposing surface of the socket.

8. A connector as claimed in Claim 7, wherein the bolts have shearable heads which shear off when the applied torque exceeds a predetermined value.